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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/320,222 05/26/99 DIETLE

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JAMES L JACKSON
MAYOR DAY CALDWELL AND KEETON LLP
SUITE 1900
700 LOUISIANA
HOUSTON TX 77002-2778

EXAMINER

COTTINGHAM, J

ART UNIT	PAPER NUMBER
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3629

DATE MAILED: 08/14/00

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/320,222

Applicant(s)

Dietle

Examiner

John Cottingham

Group Art Unit

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☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-30 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-30 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2 & 3

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 2/29/2000 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

2. Claims 1-30 are objected to because of the following informalities: the right side edge of the claims is cut off and a new copy of the claims is required. Appropriate correction is required.
3. Claim 3, line 2, the phrase "to housing" should be --to the housing--.

Claim Rejections - 35 U.S.C. § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 29-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is an inconsistency between the language in the preamble and certain portions in the body of the claims, thereby making the scope of the claims unclear. For example, the preamble clearly indicates that the subcombination of a "sealing mechanism" is being claimed with the functional recitation of the "sealing mechanism" being used "for sealing of a relatively rotatable sealing surface". However, the body of the claims positively recites the "rotatable surface", e.g., "resilient seals being supported respectively by said axially spaced annular seal carriers and having interference sealing with said relatively rotatable surface" (claim 29, lines 6-7), which indicates the claims as being drawn to a combination of the "sealing mechanism" and "rotatable surface". Therefore, applicant must clarify what the claims are intended to be drawn to, i.e., either the "sealing mechanism" alone or in combination with the "rotatable surface", and present the claims with the language which is consistent with the invention.

Claim Rejections - 35 U.S.C. § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claims 1-5, 7-11, 13-24, and 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kalsi U.S. Patent 4,484,753 (hereinafter referred to as Kalsi '753). Kalsi '753 shows all of the claimed subject matter of a laterally translatable pressure staged shaft sealing mechanism in Figures 1-5. The sealing mechanism comprises a housing 43 exposed to a first fluid at a pressure P1, a rotatable surface 14, laterally translatable annular seal carrier means 44 having grooves (upper and lower disclosed in Figure Descriptions), first and second annular resilient sealing elements 47 & 52, a staging pressure chamber 51, and means 48 communicating a second fluid at a staging pressure P2 at a fraction of P1 (see col. 8, lines 40-65). The first and second seal carriers 44 are substantially hydraulically in balanced in the axial direction. A bulkhead 59 is located in sealed relation to the housing and defining axially spaced annular seal carrier recesses (formed by the L-shaped cutout containing the carriers 44). The bulkhead 59 is substantially hydraulically force balanced in the radial direction. The first and second annular resilient sealing elements establish substantially equal sealing diameters with rotatable surface 14. A first fluid circulation passage (passage formed by member 43 and the rotatable surface 14) circulated the first fluid and a second fluid circulation passage (opening) 51 circulate the second fluid. An outboard seal 30 establishes a low pressure sealing with respect to the rotatable surface (outside surface) and defining a cooling chamber (between 51 and 48). A cooling passage (fluid circulation path) (formed between carrier 44 and housing 16) is disposed in fluid circulation communicating with the cooling chamber for circulation of the coolant fluid within the cooling chamber. A journal bearing 32a is defined by the carrier means establishing a guiding relationship

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with the rotatable surface (see Figure 1). The lower or upper carrier means 44 can be viewed as a single seal carrier 44 supporting the first and second annular resilient sealing elements 47 & 52.

Means circulating the first fluid for cooling the first and second annular resilient sealing elements is disclosed in col. 8, lines 16-39.

8. Claims 1-12, 14, 16, 18-25, and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by "A Novel High-Pressure Rotary Shaft Seal Facilitates Innovations in Drilling and Production Equipment" by Kalsi et al.. The Kalsi article shows all of the claimed subject matter of a sealing mechanism in Figures 8 and 12. The sealing mechanism comprises a housing exposed to a first fluid at a pressure, a rotatable surface (rotating washpipe), laterally translatable annular seal carrier means (holding the two rotatable seals) having grooves, first and second annular resilient sealing elements, a staging pressure chamber, and means communicating a second fluid at a staging pressure at a fraction of first pressure. The first and second seal carriers (top and bottom) are substantially hydraulically in balanced in the axial direction. A bulkhead (center square between the two carriers) is located in sealed relation to the housing and defining axially spaced annular seal carrier recesses. The bulkhead is substantially hydraulically force balanced in the radial direction. The first and second annular resilient sealing elements establish substantially equal sealing diameters with rotatable surface. A first fluid circulation passage circulated the first fluid and a second fluid circulation passage circulate the second fluid. An outboard seal (static seals not against the rotating washpipe) establishes a low pressure sealing with respect to the rotatable surface (outside surface) and defining a cooling chamber. A cooling passage (fluid

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circulation path at the top right) is disposed in fluid circulation communicating with the cooling chamber for circulation of the coolant fluid within the cooling chamber. Means (lower insertion nozzle) circulating the first fluid for cooling the first and second annular resilient sealing elements. The first and second annular resilient sealing elements can establish unequal sealing diameter when the top or second resilient sealing element is moved to the tapered part of the rotatable surface. A sealing interface is defined by engagement of the first and second annular resilient sealing elements with the relatively rotatable surface and the sealing elements have a non-circular hydrodynamic geometry for wedging lubricant into the sealing interface responsive to rotation of relatively rotatable surface.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pondelick et al. U.S. Patent 5,527,045 and Titus U.S. Patent 5,199,514 show similar inventions.
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Cottingham whose telephone number is (703) 306-3439. The examiner can normally be reached on Monday through Thursday from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H. Browne, can be reached on (703) 308-1159. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3597.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2168.



John R. Cottingham

August 9, 2000



Lynne H. Browne
Supervisory Patent Examiner
Tech Center 3600